WHAT IS CLAIMED IS:

1. A method of formulating a batch, comprising:

step A: admitting at least two ingredients to a given size container to a fraction of the full container volume for a desired batch;

step B: determining the quantities of each ingredient in the container;

step C: calculating the ratio of the target quantity to the determined current quantity for at least one of the ingredients;

step D: calculating the next quantity of the at least one ingredient by multiplying the target quantity of the ingredient by said ratio to determine a corrected quantity;

step E: admitting the corrected quantity of the ingredient to the admixture in the container;

step F: admitting a quantity of another ingredient to adjust the proportion of ingredients to the target formulation; and

step G: repeating steps B through F until the container is filled to the desired quantity of the batch.

2. A method according to claim 1, further including determining a desired fractional filling sequence of quantities of fractional fills to be performed.

3. A method as recited in claim 2, wherein step A further includes filling the container to a first fractional fill percentage in the sequence and each cycle of repeating of steps B through G further includes filling the container to subsequent fractional fill percentages in the sequence.

4. A method as recited in claim 3, wherein the filling the container to the first fractional fill percentage in the sequence includes totalVol which includes (chem1TotalVol + chem2TotalVol + diwAddedVol) where

chem1TotalVol is a total volume of a first ingredient;

chem2TotalVol is a total volume of a second ingredient;

VolLowLev is a residual volume in the container;

totalVol is the total volume of the batch; and

diwAddedVol is a volume of a third ingredient added to VolLowLev to obtain TotalVol.

5. A method as recited in claim 4, wherein chem1FracVol includes (chem1TotalVol • pourUp1Frac) where

chem1FracVol is an actual volume of the first ingredient to meet the requirements for the current fraction fill sequence; and

pourUp1Frac is a fractional fill percentage of the first fill sequence.

6. method as recited in claim 5 wherein chem1TotalVol includes (chem1Ratio • x) where x includes (totalVol ÷ (chem1Ratio + chem2Ratio + diwRatio)) and where diwAddedVol includes (diwRatio • x) – VolLowLev where

chem1Ratio is a ratio of the volume to be filled for the first ingredient for the current fractional fill sequence;

chem2Ratio is a ratio of the volume to be filled for the second ingredient for the current fractional fill sequence;

diwRatio is a ratio of the volume to be filled for the third ingredient for the current fractional fill sequence;

diwAddedVol is a volume of the third ingredient added to VolLowLev to obtain TotalVol; and

x is an intermediate variable.

7. A method according to claim 1, further including determining the quantity of each ingredient in the container measured in step B in percent by weight.

8. A method according to claim 1, further including determining the target volumetric blending ratio of the ingredients to be admitted to the container.

9. A method according to claim 8, wherein each ingredient to be admitted to the container has a known supply concentration.

10. A method according to claim 9, further including calculating the target quantity of one ingredient based on the target volumetric blending ratio and the supply concentration of the ingredient.

11. A method according to claim 10, wherein the calculation includes concChem1 which includes (chem1Ratio • bulkChem1) ÷ (chem1Ratio + chem2Ratio + diwRatio) where

chem1Ratio is a ratio of the volume to be filled for the first ingredient for the current fractional fill sequence;

chem2Ratio is a ratio of the volume to be filled for the second ingredient for the current fractional fill sequence;

diwRatio is a ratio of the volume to be filled for the third ingredient for the current fractional fill sequence; and

bulkChem1 is the supply concentration of the first ingredient in percent by weight; and

concChem1 is the target quantity of the first ingredient.

12. A method according to claim 10, further including modifying the target quantity of one ingredient as a function of the specific gravity of each ingredient in the batch.

13. A method according to claim 12, wherein the calculation includes concChem1 which includes (chem1Ratio • bulkChem1 • sGravChem1) ÷ ((chem1Ratio • sGravChem1) + (chem2Ratio • sGravChem2)) + (diwRatio • sGravChem3) where

concChem1 is the target concentration of the first ingredient;

chem1Ratio is a ratio of the volume to be filled for the first ingredient;

chem2Ratio is a ratio of the volume to be filled for the second ingredient;

diwRatio is a ratio of the volume to be filled for the third ingredient;

bulkChem1 is a supply concentration of the first ingredient;

sGravChem1 is a specific gravity for the first ingredient;

sGravChem2 is a specific gravity for the second ingredient; and

sGravChem3 is a specific gravity for the third ingredient.

14. A method as recited in claim 3, wherein the filling the container to the subsequent fractional fill percentages in the sequence includes calculating an idealChem1Frac which includes (chem1TotalVol • pourUp2Frac) where

idealChem1Frac is an ideal volume of the first ingredient to meet the requirements for a fractional fill;

chem1TotalVol is a total volume of the first ingredient to meet the requirements for the current fractional fill sequence; and

pourUp2Frac is a subsequent fractional fill percentage in the sequence.

15. A method as recited in claim 14, wherein the filling further includes calculating chem1FracVol which includes (idealChem1Frac • concChem1) ÷ chem1Val where

chem1Val is the measured Quantity of the first ingredient in the Batch;

chem1FracVol is an actual volume of the first ingredient to meet the requirements for the current fractional fill sequence; and

concChem1 is the target Quantity of the first ingredient.

16. A method as recited in claim 15, wherein the filling further includes calculating chem1FracDelta which includes (idealChem1Frac – chem1FracVol) where

chem1FracDelta is a difference between the ideal and actual volume of the first ingredient to meet the requirements for the current Fractional Fill sequence.

17. A method as recited in claim 14, wherein the filling further includes calculating diwFracVol which includes (diwAddedVol • pourUp2Frac) + chem1FracDelta + chem2FracDelta where

diwFracVol is an actual volume of a third ingredient to meet the requirements for the current fractional fill sequence;

VolLowLev is a residual volume in the container;

diwAddedVol is a volume of a third ingredient added to VolLowLev to obtain total volume;

chem1FracDelta is a difference between the ideal and actual volume of the first ingredient to meet the requirements for the current Fractional Fill sequence;

chem2FracDelta is a difference between the ideal and actual volume of the second ingredient to meet the requirements for the current Fractional Fill sequence;

18. A method as recited in claim 17, wherein the filling further includes calculating diwAddedVol which includes (diwRatio • x) – volLowLev where x is (totalVol ÷ (chem1Ratio + chem2Ratio + diwRatio)) where

chem1Ratio is a ratio of the volume to be filled for the first ingredient;

chem2Ratio is a ratio of the volume to be filled for the second ingredient;

diwRatio is a ratio f the volume to be filled for the third ingredient;

volLowLev is a residual volume of the third ingredient in the container;

totalVol is a total volume of the batch; and

x is an intermediate variable.

19. A method according to claim 17, further including determining if diwFracVol is negative, wherein if diwFracVol is negative the volume of the first ingredient is reduced by multiplying the first ingredient volume to be admitted for the current fractional fill sequence by ((totalVol – volLowLev)• pourUp2Frac) ÷ (chem1FracVol + chem2FracVol) where

totalVol is a total volume of the batch;

pourUp2Frac is a fractional fill percentage for the current fractional fill sequence;

chem1FracVol is an actual volume of the first ingredient to meet the requirements for the current fractional fill sequence; and

chem2FracVol is an actual volume of the second ingredient to meet the requirements for the current fractional fill sequence.

20. A method according to claim 1, further including comparing the current ratio of the target quantity to the determined quantity for at least one of the ingredients to the previously measured ratio, wherein if the current ratio is larger than the previous ratio an alarm signal is asserted.

21. A method according to claim 1, wherein the quantity of each ingredient is determined by absorption spectrometry.

22. A method according to claim 1, wherein one ingredient is NH_4OH.

23. A method according to claim 1, wherein one ingredient is H_2O_2.

24. A method according to claim 1, wherein one ingredient is H_2O.

25. A computer readable medium having stored thereon computer executable instructions for performing a method comprising:

step A: admitting at least two ingredients to a given size container to a fraction of the full container volume for a desired batch;

step B: determining the quantities of each ingredient in the container;

step C: calculating the ratio of the target quantity to the determined current quantity for at least one of the ingredients;

step D: calculating the next quantity of the at least one ingredient by multiplying the target quantity of the ingredient by said ratio to determine a corrected quantity;

step E: admitting the corrected quantity of the ingredient to the admixture in the container;

step F: admitting a quantity of another ingredient to adjust the proportion of ingredients to the target formulation; and

step G: repeating steps B through F until the container is filled to the desired quantity of the batch.

26. An apparatus for formulating a batch, comprising:

a tank;

at least two chemical dispensing devices, each chemical dispensing device having an input and an output, each input coupled to a chemical supply and each output coupled to the tank;

an analytical instrument for measuring the quantities of one or more ingredients, the analytical instrument coupled to the tank;

a controller coupled to the chemical dispensing devices and the analytical instrument for performing the following steps:

step A: the controller causing the chemical dispensing devices to admit at least two ingredients to a given size container to a fraction of the full container volume for a desired batch;

step B: the controller for determining the quantities of each ingredient in the container;

step C: the controller for calculating the ratio of the target quantity to the determined current quantity for at least one of the ingredients;

step D: the controller for calculating the next quantity of the at least one ingredient by multiplying the target quantity of the ingredient by said ratio to determine a corrected quantity;

step E: the controller for admitting the corrected quantity of the ingredient to the admixture in the container;

step F: the controller for admitting a quantity of another ingredient to adjust the proportion of ingredients to the target formulation; and

step G: the controller for repeating steps B through F until the container is filled to the desired quantity of the batch.

27. A system of formulating a batch, comprising:

step A: means for admitting at least two ingredients to a given size container to a fraction of the full container volume for a desired batch;

step B: means for determining the quantities of each ingredient in the container;

step C: means for calculating the ratio of the target quantity to the determined current quantity for at least one of the ingredients;

step D: means for calculating the next quantity of the at least one ingredient by multiplying the target quantity of the ingredient by said ratio to determine a corrected quantity;

step E: means for admitting the corrected quantity of the ingredient to the admixture in the container;

step F: means for admitting a quantity of another ingredient to adjust the proportion of ingredients to the target formulation; and

step G: means for repeating steps B through F until the container is filled to the desired quantity of the batch.

28. A method of formulating a batch of a desired quantity of ingredients in a container using a chemical control device and a series of fractional fill sequences, comprising:

step A:

retrieving stored user defined parameter values for a plurality of fractional fill percentages;

step B:

calculating the required quantity of each ingredient to admit into the admixture in the container for the first fractional fill using the defined parameter values retrieved in step A;

step C:

admitting the required quantity of each ingredient calculated in step B to the admixture in the container;

step D:

retrieving feedback from an analytical instrument for determining the quantities of each ingredient in the admixture;

step E:

determining if the current fractional fill sequence is either the first or second fractional fill sequence;

transitioning to step F if it is the first or second fractional fill sequence; and

transitioning to step L if it is not the first or second fractional fill sequence;

step F:

determining if the first fractional fill sequence is complete;

transitioning to step G if the first fractional fill sequence is complete; and

transitioning to step I if the first fractional fill sequence is not complete.

step G:

determining if the first fractional fill delta values are already stored;

transitioning to step I if the first fractional fill delta values are already stored;

transitioning to step H if the first fractional fill delta values are not already stored.

step H:

storing the first fractional fill delta values; and

transitioning to step I;

step I:

determining if the second fractional fill is complete;

transitioning to step L if the second fractional fill is not complete; and

transitioning to step J if the second fractional fill is complete.

step J:

obtaining the second fractional fill delta values;

computing the delta between the first fractional delta values and the second fractional fill delta values;

determining if any of the second fractional delta values are greater than or equal to the first fractional delta values;

transitioning to step K if any of the second fractional delta values are greater than or equal to the first fractional delta values; and

transitioning to step L if any of the second fractional delta values are not greater than or equal to the first fractional delta values;

step K:

stopping the fractional filling sequence; and

communicating an error message;

step L:

comparing the feedback from the analytical instrument to the desired quantity of ingredients;

calculating an error correction for the chemical control device if the comparison from the analytical instrument to the desired quantity of ingredients are not equal;

calculating the required quantity of each ingredient to admit into the admixture in the container for the next fractional fill using the calculated error correction;

determining if the final fractional fill sequence is complete;

transitioning to step E if the final fractional fill sequence is not complete;

29. A computer readable medium having stored thereon computer executable instructions for performing a method of formulating a batch of a desired quantity of ingredients in a container using a chemical control device and a series of fractional fill sequences, comprising:

step A:

retrieving stored user defined parameter values for a plurality of fractional fill percentages;

step B:

calculating the required quantity of each ingredient to admit into the admixture in the container for the first fractional fill using the defined parameter values retrieved in step A;

step C:

admitting the required quantity of each ingredient calculated in step B to the admixture in the container;

step D:

retrieving feedback from an analytical instrument for determining the quantities of each ingredient in the admixture;

step E:

determining if the current fractional fill sequence is either the first or second fractional fill sequence;

transitioning to step F if it is the first or second fractional fill sequence; and

transitioning to step L if it is not the first or second fractional fill sequence;

step F:

determining if the first fractional fill sequence is complete;

transitioning to step G if the first fractional fill sequence is complete; and

transitioning to step I if the first fractional fill sequence is not complete.

step G:

determining if the first fractional fill delta values are already stored;

transitioning to step I if the first fractional fill delta values are already stored;

transitioning to step H if the first fractional fill delta values are not already stored.

step H:

storing the first fractional fill delta values; and

transitioning to step I;

step I:

determining if the second fractional fill is complete;

transitioning to step L if the second fractional fill is not complete; and

transitioning to step J if the second fractional fill is complete.

step J:

obtaining the second fractional fill delta values;

computing the delta between the first fractional delta values and the second fractional fill delta values;

determining if any of the second fractional delta values are greater than or equal to the first fractional delta values;

transitioning to step K if any of the second fractional delta values are greater than or equal to the first fractional delta values; and

transitioning to step L if any of the second fractional delta values are not greater than or equal to the first fractional delta values;

step K:

stopping the fractional filling sequence; and

communicating an error message;

step L:

comparing the feedback from the analytical instrument to the desired quantity of ingredients;

calculating an error correction for the chemical control device if the comparison from the analytical instrument to the desired quantity of ingredients are not equal;

calculating the required quantity of each ingredient to admit into the admixture in the container for the next fractional fill using the calculated error correction;

determining if the final fractional fill sequence is complete;

transitioning to step E if the final fractional fill sequence is not complete;